Letters to the Editor

The Board of Editors will not hold itself responsible for opinions expressed in the letters, published in this section. The notes containing reports of new work communicated for this section should not contain many figures and should not exceed 500 words in length. The contributions must reach the Assistant Editor not later than the 15th of the second month preceding that of the issue in which the Letter is to appear. No proof will be sent to the authors.

STRUCTURE OF THE SPECTRUM OF DOUBLY IONISED BROMINE.

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The first important investigations on the spectrum of doubly ionised bromine (Br III) were done by L. and E. Bloch (1927) and Lacroute (1935) who gave an almost complete list of the lines of Br III. Rao and Krishna Murty (1937) identified some of the quartet terms and gave a tentative identification of the doublet terms independent of the quartet terms. In a later communication Rao (1944) has reported the identification of some intercombination lines and gave the intervals $4p^3\ {}^4S^\circ_{3/2}-4p^3\ {}^2D^\circ_{3/2}$ and $4p^3\ {}^2D^\circ_{5/2}-4p^3\ {}^2P^\circ_{\frac{1}{2}}$. Still several strong lines in the spectrum remain unclassified, and the analysis is far from complete and needs confirmation. An extensive study of the spectrum has been made along with that of Br II (Y. B. Rao 1956) over the range λ 10,000A to λ400A. With spectrographs of small and large dispersion. The present investigation has shown that the doublets and intercombinations given by Rao and Krishna Murty (1937) and Rao (1944, an unpublished work) are not correct except for the level $4p^3\ {}^2D^\circ_{5/2}$. Several levels are newly identified and the intercombinations are definitely established leading to the classification of more than 175 lines. The new levels with their designations and J values are given in Table below in ascending order of magnitude calculated with respect to the ground level $4p^3\ {}^4S^\circ_{3/2}$ as zero; the notation is that adopted by Moore (1952).

TABLE I

Designation	J	Level	Interval
$4p^3\ ^2D^\circ$	3/2	15105.0	
	5/2	16300.0	1195.0
$4p^3\ ^2P^\circ$	1/2	27050.4	1609.3
	3/2	28659.7	
$4p^4\ ^4P$	5/2	101532.1	−2596.6
	3/2	104128.7	−1250.9
	1/2	105379.6	
$4p^4\ ^2P$	3/2	137531.3	−1077.4
	1/2	138608.7	
$4d\ ^4F$	3/2	139792.4	2446.4
	5/2	142238.8	1928.3
	7/2	144167.1	1638.4
	9/2	145805.5	
$4d\ ^4D$	1/2	143995.6	1179.8
	3/2	145175.4	450.9
	5/2	145626.3	626.3
	7/2	146252.6	
1	3/2	146164.9	
$4d\ ^4P$	5/2	148868.1	−2195.6
	3/2	151063.7	−1700.1
	1/2	152763.8	
2	3/2	149326.8	
$4d\ ^2F$	5/2	149864.8	1761.1
	7/2	151625.9	
$5s\ ^2P$	1/2	150906.3	2939.6
	3/2	153845.8	
3	3/2	152975.8	
$4d\ ^2D$	3/2	153508.3	

TABLE I (*contd.*)

Designation	J	Level	Interval
$4d\ ^2P$	3/2	153866∞	
$5s'\ ^2D$	5/2	160257.4	−935.7
	3/2	161193.1	
$4p^4\ ^2D$	3/2	163641.6	202.1
	5/2	163843.7	
$5p\ ^2S°$	1/2	182006.2	
$5p^2\ D''$	3/2	182198.0	2522.5
	5/2	184720.5	
$5p\ ^2P°$	1/2	183829.9	118.1
	3/2	183948.0	
4	3/2 or 5/2	203261.7	
5	1/2 or 3/2	203465.4	
6	5/2 or 5/2	204247.2	
7	5/2	205162.3	
8	3/2	207243.0	
9	3/2	208561.1	
$5d\ ^4F$	3/2	210602.4	3505.8
	5/2	214108.2	2723.9
	7/2	216832.1	
$5d\ ^4D$	1/2	211713.3	738.3
	3/2	212451.6	1817.4
	5/2	214269.0	2310.4
	7/2	216579.4	
10	3/2	212726.9?	

TABLE I (*contd*).

Désignation	J	Level	Interval
$5d\ ^4P$	5/2	214703.7	
			−394.2
	3/2	215097.9	
			−759.7
	1/2	215857.6	
11	3/2	214882.5	
12	3/2	216397.2	
13	5/2	217173.4	
14	5/2	217923.6?	
15	3/2	218927.1	
16	3/2 or 5/2	219852.9	
17	3/2	220282.6	
18	5/2	220348.9	
19	5/2	221793.8?	
20	1/2 or 3/2	222432.7	
21	3/2	222690.3	
22	3/2 or 5/2	224990.2	
23°	5/2	229823.1	
24°	1/2, 3/2 or 5/2	232442.0	

Details of the analysis will be published shortly.

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